

#### 4.3.3.2.2.10 Waste Management

This section summarizes the waste management impacts for the construction and operation of a deep borehole complex which disposes of the waste form produced by the ceramic immobilization facility outlined in Section 4.3.3.2.1.10. There is no spent nuclear fuel or HLW associated with the operation of the deep borehole facility; however, the product output from the immobilization facility is a stabilized coated ceramic pellet. Table 4.3.3.2.2.10-1 provides the operational waste volumes projected to be generated from the deep borehole facility for immobilized disposal. Facilities that would support the deep borehole facility would treat and package all waste generated into forms that would enable long-term storage and/or disposal in accordance with the regulatory requirements of RCRA and other applicable statutes. Depending in part on decisions in waste-type-specific RODs for the Waste Management PEIS, waste could be treated, and depending on the type of waste, disposed of onsite or at regionalized or centralized DOE sites. For purposes of analyses only, this PEIS assumes that TRU and mixed TRU waste would be treated on-site to the current planning-basis WIPP WAC, and shipped to WIPP for disposal. For purposes of analysis, a pristine site with no waste management infrastructure was assumed for No Action because the deep borehole facility was assumed to be a rural setting where no waste is currently being generated. The incremental waste volumes generated from the deep borehole facility and the resultant waste effluent used for the waste impact analysis can be found in Section E.3.3.2. A detailed description of the waste management activities that would be required to support the new deep borehole disposal facility can be found in Section E.3.3.2.

Construction and operation of a deep borehole disposal facility for immobilized disposal would require the construction of waste management facilities to treat and store generated TRU, low-level, mixed, hazardous, and nonhazardous wastes. Wastes generated during construction would consist of wastewater, and solid nonhazardous and hazardous wastes. The nonhazardous waste would be disposed of as part of the construction project by the contractor and the hazardous waste would be shipped to commercial RCRA-permitted treatment and disposal facilities. No soil contaminated with hazardous or radioactive constituents is expected to be generated during construction. However, if any is generated it would be managed in accordance with all applicable Federal and State regulations.

Less than 1 m<sup>3</sup> (120 gal) of liquid TRU waste generated per year from equipment decontamination would be treated in a waste handling facility to form grout. In the solids treatment area of the waste handling facility less than 1 m<sup>3</sup> (<1 yd<sup>3</sup>) of solid TRU waste from process and facility operations, equipment decontamination, failed equipment, and used tools would be compacted, as appropriate, then packaged, assayed, and certified to the WIPP WAC or alternative treatment level. A small quantity (0.1 m<sup>3</sup> [0.2 yd<sup>3</sup>]) of mixed TRU solid waste would require treatment and packaging to meet the current planning-basis WIPP WAC or alternative treatment level. Mixed TRU waste would be principally rubber gloves and leaded gloveboxes. To transport the TRU and mixed TRU wastes to WIPP (depending on decisions made in the ROD associated with the supplemental EIS being prepared for the proposed continued phased development of WIPP for disposal of TRU waste), one truck shipment every 15 years would be required.

An estimated 3 m<sup>3</sup> (800 gal) of liquid LLW from process wash liquids and excess water from the borehole would be solidified in the waste handling facility. The solidified liquid LLW and solid LLW comprised of sealant residues, contaminated reagent containers, deformed shipping containers, wipes, rags, and paper clothing would result in approximately 5 m<sup>3</sup> (7 yd<sup>3</sup>) of LLW that would require disposal at a DOE LLW disposal facility. Using the land usage factors from Section E.1.4, the area required for LLW disposal would be 0.002 ha/yr (0.004 acres/yr) at Hanford and ORR, 0.0008 ha/yr (0.002 acre/yr) at NTS and INEL, and 0.0006 ha/yr (0.002 acres/yr) at SRS. The ultimate disposal of LLW will be in accordance with the ROD(s) from the Waste Management PEIS.

Approximately 141 m<sup>3</sup> (37,400 gal) of liquid hazardous waste consisting of 2 m<sup>3</sup> (600 gal) of chemical makeup and reagents from the surface facility and 139 m<sup>3</sup> (36,800 gal) of decontamination water, oil, antifreeze, and hydraulic fluid from the drilling and emplacing-borehole sealing facilities would be collected in DOT-approved

**Table 4.3.3.2.2.10-1. Estimated Annual Generated Waste Volumes for the Deep Borehole Complex<sup>a</sup>—Immobilized Disposition Alternative**

Category	New Facility (m <sup>3</sup> )	No Action (m <sup>3</sup> )
<b>Transuranic</b>		
Liquid	0.5 <sup>b</sup>	None
Solid	0.5	None
<b>Mixed Transuranic</b>		
Liquid	0	None
Solid	0.1	None
<b>Low-level</b>		
Liquid	3 <sup>b</sup>	None
Solid	6	None
<b>Mixed low-level</b>		
Liquid	0	None
Solid	0	None
<b>Hazardous</b>		
Liquid	141	None
Solid	15	None
<b>Nonhazardous (sanitary)</b>		
Liquid	9,460	None
Solid	291	None
<b>Nonhazardous (other)</b>		
Liquid	6,060	None
Solid	1,250 <sup>c</sup>	None

<sup>a</sup> No waste generation was assumed for No Action. Waste generation volumes for deep borehole disposal facility for immobilized disposal are from Table E.3.3.2-1. Waste effluent volumes (that is, after treatment and volume reduction) which are used in the narrative description of the impacts are also provided in Table E.3.3.2-1.

<sup>b</sup> Liquid TRU and LLW would be treated and solidified prior to disposal.

<sup>c</sup> Includes rock cuttings, bentonite, and polymers from drilling and emplacing borehole sealing facilities.

containers and shipped to RCRA-permitted treatment and disposal facilities. An estimated 15 m<sup>3</sup> (20 yd<sup>3</sup>) of solid hazardous waste such as wipes contaminated with oils, lubricants, and cleaning solvents would be compacted, as appropriate, and then packaged in DOT-approved containers and shipped to RCRA-permitted treatment and disposal facilities.

Approximately 9,460 m<sup>3</sup> (2,500,000 gal) of liquid nonhazardous sanitary and industrial wastewater and 6,060 m<sup>3</sup> (1,600,000 gal) of steam plant blowdown and evaporator condensate would require treatment in accordance with standard industrial practices. Treated wastewater would be designated as reclaimed water recycle and would be used as makeup to the cooling tower. Construction of sanitary, utility, and process wastewater treatment systems would be required. The 291 m<sup>3</sup> (380 yd<sup>3</sup>) of solid nonhazardous waste such as paper, glass, discarded office material, and cafeteria waste would be shipped to a permitted landfill. The drilling and emplacing-borehole sealing facilities would generate approximately 1,250 m<sup>3</sup> (1,630 yd<sup>3</sup>) of rock cuttings, bentonite, and polymers. As per customary drilling industry practices, these wastes would end up in mud pits and then filled with earth and leveled.